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# **Babylonian Mode of Thought**

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The expression ‘Babylonian mode of thought’ has been used in economics – and particularly in connection with Post Keynesian economics – in an attempt to identify a way of approaching economic analysis which is quite different from the mainstream. We start by tracing the use made of the term, and then discuss in more detail its meaning and significance.

But first we need to consider the term ‘mode of thought’. It refers to the principles of knowledge construction and communication which underpin choice of methodology, and indeed daily life: ‘As we think, we live’ (Whitehead, 1938: 87). A mode of thought is ‘the way in which arguments (or theories) are constructed and presented, how we attempt to convince others of the validity or truth of our arguments’ (Dow, 1985: 11). It is important to dig down to this level, beyond the methodological level, since arguments about the relative merits of different methodologies (such as Post Keynesian and mainstream) can founder through lack of recognition that different modes of thought are also involved.

The term ‘Babylonian’ was used by Keynes (1933/1972) in his biography of Newton, where he challenged the conventional understanding of Newton as the first of the age of reason. Instead ‘[h]e was the last of the magicians, the last of the Babylonians and Sumerians, the last great mind which looked out on the visible and intellectual world with the same eyes as those who began to build our intellectual inheritance rather less than 10,000 years ago’ (Keynes, 1972: 364). Keynes contrasted the way in which Newton relied on intuition in order to arrive at explanations for natural phenomena, on the one hand, with the rational proofs he constructed after the fact, on the other.

The term ‘Babylonian’ then apparently fell into misuse until introduced to modern economics in Stohs’s (1983) note on the subject of Keynes on uncertainty, which he argued could be developed further on Babylonian lines. He had picked up the Babylonian category from Wimsatt’s (1981) discussion in terms of the social sciences in general, in juxtaposition to Cartesian/Euclidean thought. According to the Babylonian approach, ‘there is no single logical chain from axioms to theorems; but there are several parallel, intertwined, and mutually reinforcing sets of chains, such that no particular axiom is logically basic’ (Stohs, 1983: 87).

Wimsatt in turn had developed the idea from Feynman’s (1965) representation of what he called the Babylonian tradition in mathematics, which involved a range of starting-points for arguments, and thus a multiple derivability of physical laws. Feynman contrasted this with the Euclidean approach, which ties all arguments deductively to a set of axioms, and argued that the Babylonian approach was preferable for physics: ‘The method of always starting from the axioms is not very efficient in obtaining theorems’ (Feynman, 1965: 47). Indeed the context of this argument is a discussion of the limitations of mathematics for physics (Feynman, 1965: 56-70).

Following on from Stohs, Dow (1985; 1996) explored the nature and implications of Babylonian thought in order to understand the different underpinnings of mainstream economic methodology from those of the methodologies of other schools of thought. Post Keynesianism being one of those schools of thought, the idea of Babylonian thought came to be one of the ways by which Post Keynesianism has become identified in the various efforts to specify the philosophical and methodological underpinnings of Post Keynesian economics.

Feynman (1965) presented Babylonian mathematics as consisting of an array of chains of reasoning, not tied to any one set of axioms, but governed by the practicalities of the problem at hand. It is thus a realist approach to knowledge. Since no one set of axioms can be relied on as being true, long chains of reasoning simply serve to compound any inaccuracy. Rather than constructing a single general formal system, it is seen as preferable to segment reality for the purposes of constructing a range of partial analyses, which are incommensurate; if they were commensurate, the arguments could be formally combined. One chain of reasoning might focus on one segment of reality such that a particular variable is (provisionally) exogenous, which is endogenous to another chain of reasoning. One chain of reasoning might rely on statistical analysis, while another might rely on historical research, for example. Euclidean mathematics, by contrast, is a closed logical system built on one set of axioms using one, mathematical, method; it abstracts from practical problems in order to generate universal solutions within the domain of abstraction. The logical system is thus governed by internal rules rather than reference to reality. This deductivist style of reasoning is also associated with Descartes, hence the term 'Cartesian/Euclidean'.

Cartesian/Euclidean thought is a closed system, such that all variables are pre-specified and categorised as endogenous or exogenous; what is not known is assumed to be random. The nature of the components and their interrelations is fixed. In order to satisfy these conditions for closure, Cartesian/Euclidean thought is characterised by dualism and atomism. Duals are the all-encompassing, mutually-exclusive categories with fixed meaning typical of closed systems. Variables are endogenous or exogenous; values are known with certainty (or within a stochastic distribution whose moments are known with certainty) or are not known at all; relationships are either causal or random; economic agents are rational or irrational, and so on. Atomism involves building up a theoretical system on the basis of the smallest units, which are independent of each other and of the system of which they are a part – rational economic men.

Babylonian thought is an open system, where the identity of all the relevant variables and relationships between them is not known, and in any case the meaning of variables and their interrelations is subject to change. There is scope for creativity and discrete shifts, as well as for stability. Babylonian thought is neither dualistic nor atomistic. The categories used to account for social life in an evolving environment are not seen as readily falling into duals. Indeed vagueness of categories is seen to have the benefit of adaptability within a changing environment where institutions, understanding and behaviour undergo change. In a system of thought with a variety of incommensurate strands of argument, variables may be exogenous to one strand but endogenous to another. Knowledge is in general held with uncertainty (by economic agents and by economists), so the analysis points to degrees of uncertainty. Further, some strands of argument may refer to individuals, and others to the group level, since causal forces may act in either direction. Indeed individuals are not seen as independent, and their behaviour may change as the environment changes. Institutions

and conventions provide the stability to allow decisions to be taken in an uncertain environment.

Babylonian thought therefore refers to a social structure which is understood to be organic, itself an open system. It is thus realist, and indeed holds much in common with the critical realist approach to economics (although not its philosophical foundations). While Lawson (1994) argues that critical realism does not in itself provide the basis for identifying schools of thought among those who adopt a critical realist approach, this need not be the case (see Dow, 1999). The Babylonian approach suggests a basis for differentiation in the form of realist ontology adopted – whether the economist understands the economic process in terms of production or exchange, class or the rational individual, and so on. The case for the compatibility between Babylonian thought and critical realism was made by Arestis, Dunn and Sawyer (1999) in response to Walters and Young's (1997) critique; see also Dow (1999).

Similarly, Babylonian thought provides a rationale for pluralism. It justifies both methodological pluralism (methodologists analysing a range of methodologies) and pluralism of method (economists using a range of methods). If the real world is understood as organic, not governed by universal laws, then there is scope for a range of methodologies. Further Babylonian thought specifically supports the use of a range of different methods for different chains of reasoning. But, to be operational, both forms of pluralism are moderated by the way in which the open system of thought is specified. How the real world is understood will govern the particular choice of methodology, and in turn the range of methods to be used.

The original expression of the Babylonian mode of thought was misunderstood by some as the dual of Cartesian/Euclidean thought. Rather than generating a unified methodology, it was seen as encouraging methodological diversity in the extreme sense of eclecticism. Cartesian/Euclidean thought offers a closed axiomatic system, which yields certain conclusions given the axioms. When Babylonian thought was understood as an open system without axioms, with incommensurate methods and with uncertain conclusions, it was taken to imply the absence of methodological principles - an 'anything goes' approach. It was associated with pure pluralism in the sense of a range of methods with no appraisal criteria by which to assess them. This interpretation was restated forcibly by Davidson (2003-04), who insisted on the merits of expressing Post Keynesian ontology in terms of axioms. But while axioms imply deductive logic, Davidson like most Post Keynesians uses human logic, which is implicit in Babylonian thought (see Dow 2005).

The 'anything goes' interpretation is dualistic, according more with the Cartesian/Euclidean mode of thought. Rather, the Babylonian mode of thought requires some criteria by which to choose segmentations of the subject matter for analysis, the chains of reasoning to pursue, and the methods employed to pursue them. This means that pluralism in Babylonian thought is not 'pure pluralism', but rather structured (Dow 2004). The subject matter is regarded as too complex to be captured fully in any one analytical system, so a range of choices as to methodology is possible. Since Post Keynesians have a distinctive ontology, a distinctive methodology follows, which differs from the methodology of other schools of thought that also employ an open-systems mode of thought. The corollary is that, while Post Keynesians can (and do) argue for their own methodology and theories, they recognise that others, with different ontologies, will choose different methodologies and theories. While thought progresses within Post Keynesianism, there is also evidence in the extent of Post Keynesian work which crosses boundaries with other

schools of thought, that an open thought system fosters creative synthetic developments.

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